KeeYees KYES-ESPWS

KeeYees WiFi Weather Station Kit (KYES-ESPWS) Instruction Manual

Brand: KeeYees | Model: KYES-ESPWS

Introduction

This manual provides detailed instructions for setting up, operating, and maintaining your KeeYees WiFi Weather Station Kit. This kit is designed for Internet of Things (IoT) applications, featuring an ESP8266 WiFi module, a GY-BME280 sensor for temperature, humidity, and atmospheric pressure, and a 1.3-inch OLED display. It is an ideal solution for creating a personal weather station or integrating environmental data into your IoT projects.

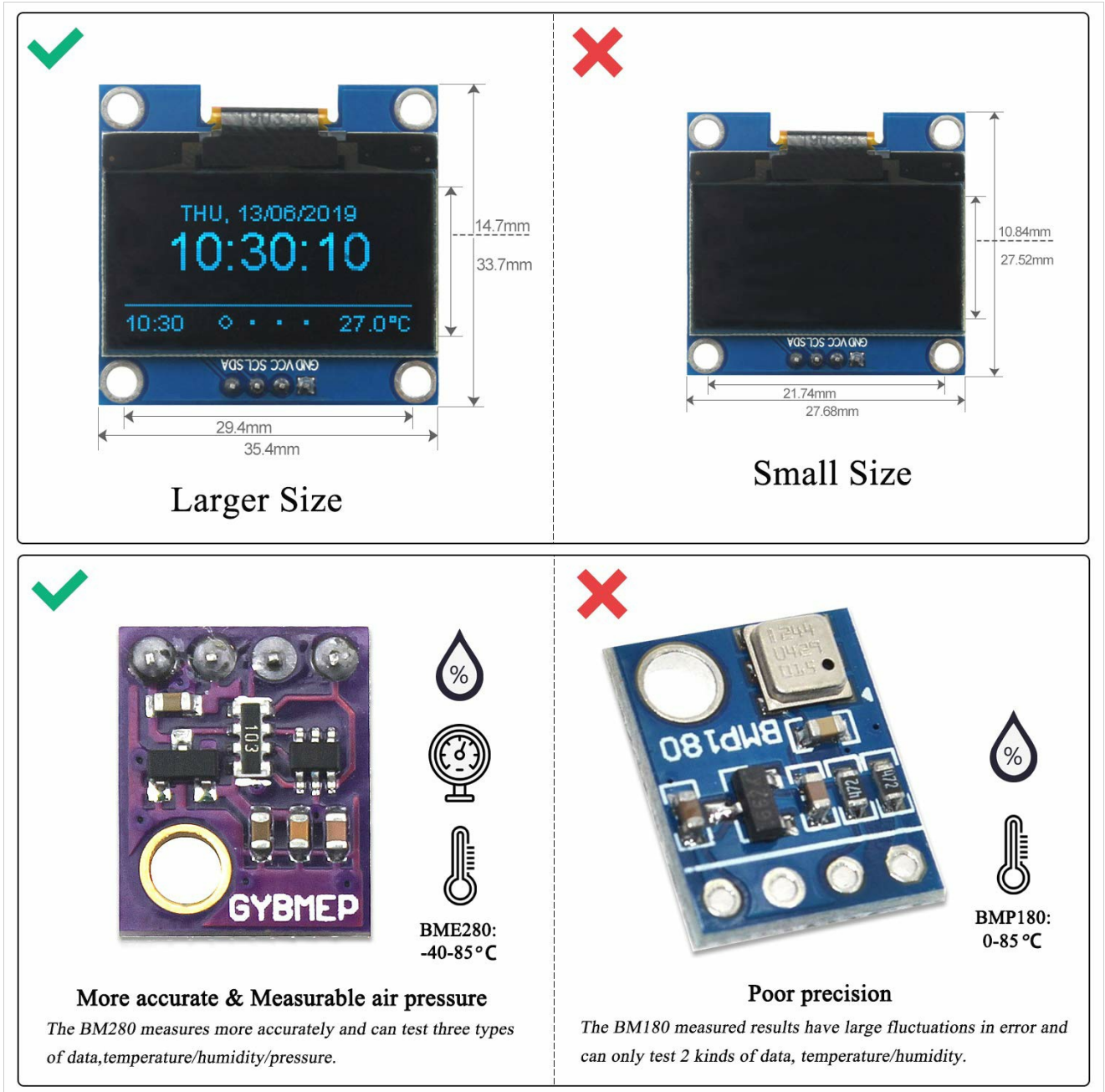

Image: Overview of the KeeYees WiFi Weather Station Kit components.

Package Contents

Verify that all the following components are included in your kit:

- 1 x ESP8266 WiFi Module
- 1 x GY-BME280 Sensor Module (Temperature, Humidity, Atmospheric Pressure)
- 1 x 1.3" OLED Display
- 1 x Male to Female Jumper Wire Set (40 pin, 10 cm)
- 1 x Male to Male Jumper Wire Set (40 pin, 10 cm)
- 1 x Plastic Storage Box

Image: All components of the KeeYees WiFi Weather Station Kit neatly packed in a plastic storage box.

Product Overview and Components

ESP8266 WiFi Module

- Output Voltage: 3.3V
- Input Voltage: 5V
- WLAN Standard: 802.11b/g/n
- Interfaces: PWM/I2C/SPI/UART
- Dimensions: 58 x 31 x 13 mm
- Features: High performance ESP8266 microcontroller (ESP-12E) with integrated 25dBm antenna, offering a complete and self-contained Wi-Fi networking solution.

GY-BME280 Sensor Module

- Supply Voltage: 1.8 - 5V DC

- Interface: I2C (up to 3.4MHz), SPI (up to 10 MHz)
- Operational Range:
  - Temperature: -40 ~ +85°C
  - Humidity: 0~100%
  - Pressure: 300~1100 hPa
- Resolution:
  - Temperature: 0.01°C
  - Humidity: 0.008%
  - Pressure: 0.18Pa
- Accuracy:
  - Temperature: ±1°C
  - Humidity: ±3%
  - Pressure: ±1Pa
- I2C Address: SDO LOW : 0x76, SDO HIGH: 0x77

1.3" OLED Display

- Size: 1.3 inch
- Resolution: 128*64
- Controlling Chip: SSH1106
- Display Area: 29.42*14.7 MM (1.16*0.58 IN)
- Driving Voltage: 3.3V-5V
- Operating Temperature: -40~70 ℃
- Interface Type: IIC
- Light Color: Blue

Jumper Wires

- Material: Copper-clad aluminum and PVC
- Each Cable Length: 10 cm
- Quantity: 40 pin (2 sets)
- Types: Male to Female / Male to Male

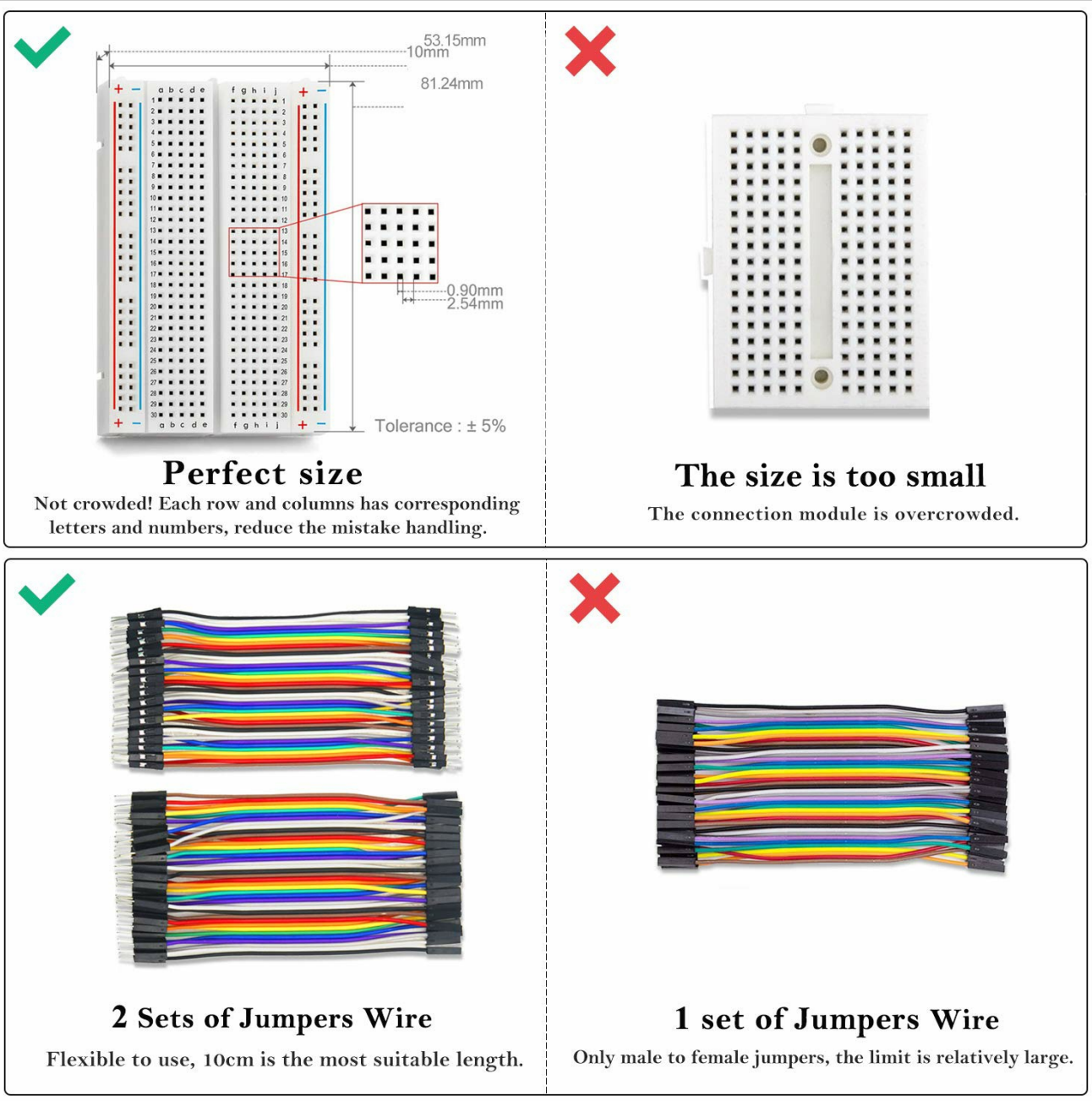

Image: Visual comparison highlighting the larger 1.3" OLED display and the more accurate BME280 sensor over older models.

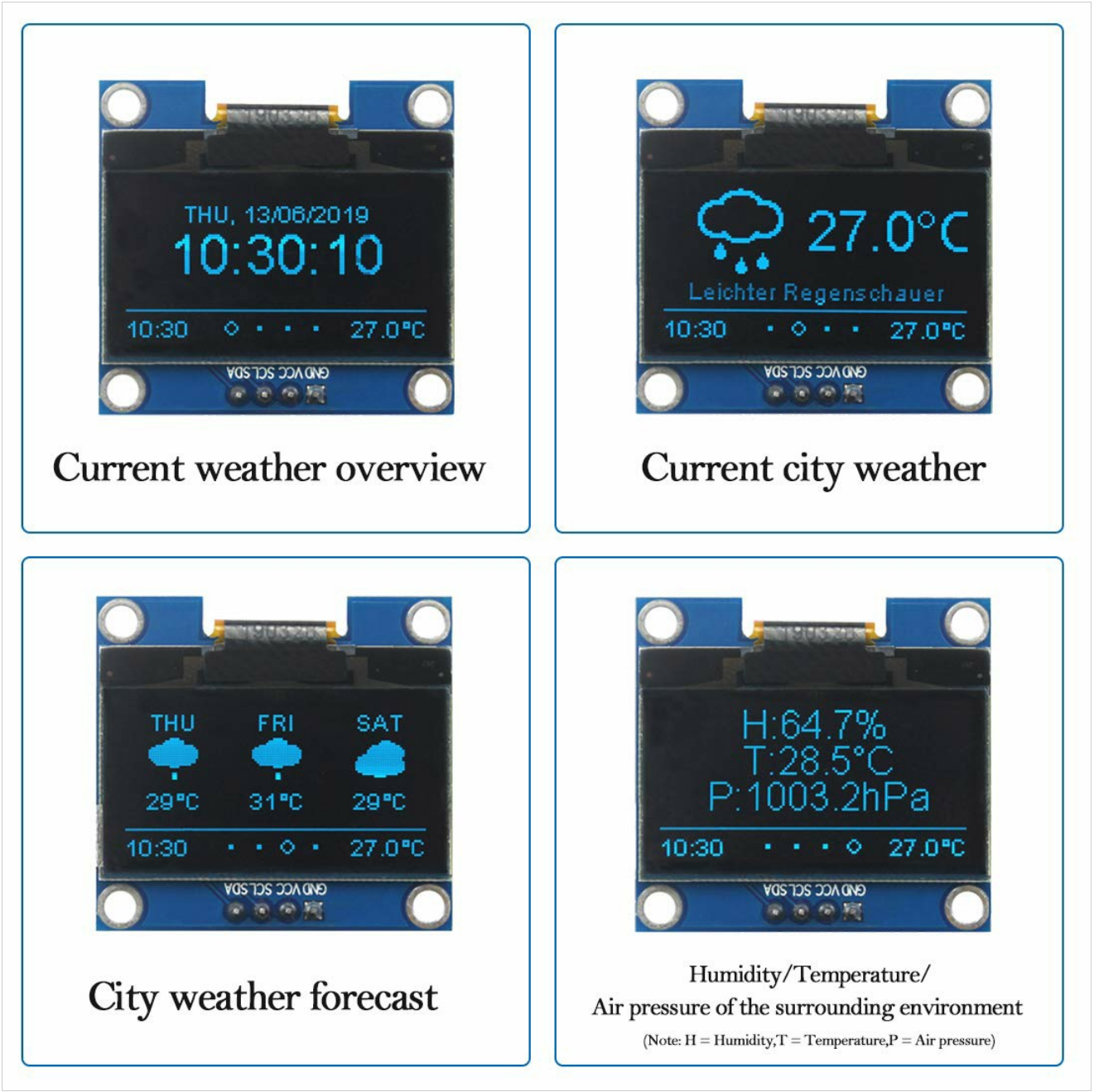

Image: Illustration of the included 2 sets of flexible 10cm jumper wires and a spacious 400-pin breadboard for easy assembly.

Setup Instructions

Physical Connection

Carefully connect the components using the provided jumper wires. Ensure correct polarity and pin assignments to prevent damage to the modules.

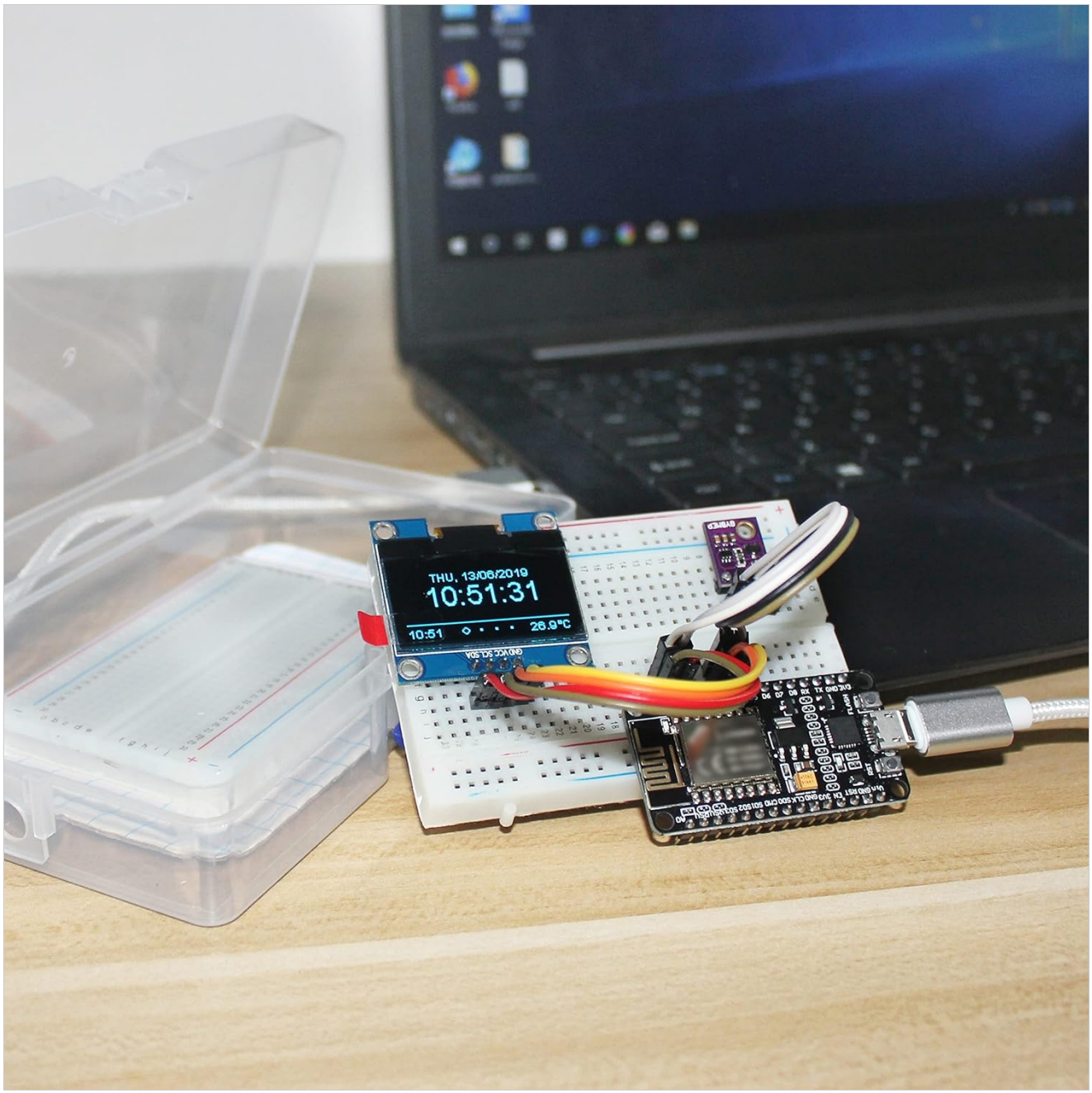

Image: The assembled WiFi Weather Station Kit on a breadboard, connected to a laptop for programming.

Connecting BME280 to Arduino Nano

This video demonstrates the physical connections required to interface the BME280 sensor with an Arduino Nano Every using I2C communication. Pay close attention to the VCC, GND, SDA, and SCL pins.

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Video: Tutorial on connecting the BME280 sensor to an Arduino Nano Every.

Connecting BME280 to Raspberry Pi

This video illustrates the physical connections for integrating the BME280 sensor with a Raspberry Pi, specifically using GPIO2 and GPIO3 for I2C communication. Ensure proper wiring to avoid damage.

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Video: Tutorial on connecting the BME280 sensor to a Raspberry Pi.

Software Setup

The kit requires software setup using the Arduino IDE or Python for Raspberry Pi. Detailed tutorials are available to

guide you through the process, including library installation and code examples.

1. **Install Arduino IDE:** Download and install the Arduino IDE from the official website.
2. **Board Manager:** Install the necessary board packages for your ESP8266 module (e.g., ESP8266 boards by ESP8266 Community).
3. **Library Manager:** Install the 'Adafruit BME280 Library' and its dependencies. This library simplifies reading data from the sensor.
4. **Load Example Code:** Open the 'BME280test' example from the Adafruit BME280 Library. You may need to adjust the I2C address (0x76 or 0x77) in the code to match your specific sensor.
5. **Upload Sketch:** Connect your ESP8266 module to your computer and upload the modified sketch.

Image: Screenshots from the detailed tutorial, showing steps for software setup and configuration.

Operating Instructions

Once the physical connections are made and the software is uploaded, the weather station kit will begin collecting and displaying environmental data.

1. **Power On:** Connect the ESP8266 module to a 5V power source (e.g., USB port on a computer or a USB power adapter).
2. **Monitor Data:** Open the Serial Monitor in the Arduino IDE (or run your Python script on Raspberry Pi) to view real-time temperature, humidity, and atmospheric pressure readings.
3. **OLED Display:** The 1.3" OLED display will show the collected data, often including current weather, forecasts, and specific sensor values depending on the uploaded code.

Image: Examples of data displayed on the 1.3" OLED screen, including current time, temperature, humidity, and pressure.

Maintenance

To ensure the longevity and accurate operation of your weather station kit, consider the following maintenance tips:

- **Keep Dry:** Protect the modules from moisture and extreme environmental conditions.
- **Clean Gently:** If necessary, gently clean the sensor and display surfaces with a soft, dry cloth. Avoid abrasive materials or harsh chemicals.

- **Secure Connections:** Periodically check all jumper wire connections to ensure they are secure and free from corrosion.
- **Software Updates:** Keep your Arduino IDE libraries and ESP8266 board definitions updated to benefit from the latest features and bug fixes.

Troubleshooting

If you encounter issues with your KeeYees WiFi Weather Station Kit, refer to the following common troubleshooting steps:

- **No Display Output:**
  - Check power connections to the OLED display and ESP8266.
  - Verify I2C connections (SDA, SCL) are correct.
  - Ensure the correct display library (SSH1106, not SSD1306) is installed and used in your code.
  - Confirm the I2C address in your code matches the display (e.g., 0x3C or 0x3D).
- **Sensor Not Reading Data:**
  - Check power and I2C connections to the GY-BME280 sensor.
  - Verify the 'Adafruit BME280 Library' is correctly installed.
  - Ensure the I2C address in your code matches the sensor (0x76 or 0x77).
  - Confirm the sensor is properly soldered if it came as a separate module.
- **WiFi Connection Issues:**
  - Double-check your WiFi SSID and password in the code.
  - Ensure the ESP8266 module is within range of your WiFi network.
  - Verify the correct ESP8266 board is selected in the Arduino IDE.
- **Code Upload Errors:**
  - Ensure the correct COM port is selected in the Arduino IDE.
  - Check for syntax errors in your code.
  - Disconnect any peripherals during code upload if you experience issues.

Specifications

Feature	Detail
Manufacturer	KeeYees
Item Model Number	KYES-ESPWS
Item Weight	181 g
Product Dimensions	1.3 x 2.95 x 1.3 cm
Color	Black
Material	Acrylonitrile Butadiene Styrene (ABS), Aluminum
Power Source	Corded Electric

Feature	Detail
Display Style	LCD, OLED
Connectivity Technology	I2C, USB, Wi-Fi
Special Feature	All-in-one Kit

Support & Warranty

KeeYees is committed to providing reliable support for its products. A detailed weather station tutorial, including guidance manual, demo code, burning tools, and necessary class libraries, is available upon request.

- **Customer Support:** For any questions or assistance, please contact KeeYees directly through the platform where you purchased the product.
- **Return Policy:** This product is eligible for a refund or replacement within 30 days of purchase, subject to the seller's return policy. Please refer to your purchase details for specific terms and conditions.